

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 25 JAN 2006

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Applicant's or agent's file reference J.	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/NZ2004/000225	International filing date (day/month/year) 21.09.2004	Priority date (day/month/year) 25.09.2003	
International Patent Classification (IPC) or national classification and IPC F16K11/074, G05D23/13			
Applicant GREENS INDUSTRIES LIMITED			

<ol style="list-style-type: none"> <li>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</li> <li>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</li> <li>3. This report is also accompanied by ANNEXES, comprising:           <ol style="list-style-type: none"> <li>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 2 sheets, as follows:               <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> </li> <li>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ol> </li> </ol>
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<ol style="list-style-type: none"> <li>4. This report contains indications relating to the following items:           <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul> </li> </ol>
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Date of submission of the demand 14.04.2005	Date of completion of this report 24.01.2006
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Heneghan, M Telephone No. +49 89 2399-8544
	

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NZ2004/000225

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

**Description, Pages**

1-21 as originally filed

**Claims, Numbers**

1-28, 29(part) as originally filed  
29(part), 30, 31 filed with telefax on 24.08.2005

**Drawings, Sheets**

1/5-5/5 as originally filed

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

- The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
- This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos. 30,31
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes:	Claims	1-29
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-29
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-29
	No:	Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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International application No.  
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**Re Item I**

**Basis of the opinion**

1. Some of the amendments to the claims filed with the Applicants letter dated 24.08.2005 introduce subject-matter which extends beyond the content of the application as filed, contrary to Articles 19(2) and 34(2) PCT, since there is no basis in the original application for these amendments. The amendments concerned are the introduction of the method claims 31 and 32.

These claims have, therefore, not been considered in the assessment of patentability of the application.

**Re Item V**

**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**Independent claims 1, 28 and 29**

2. The subject matter of claims 1, 28 and 29 of the present application are considered to involve an inventive step (Article 33(3) PCT) for the following reasons:
  - 2.1. The subject-matter of claim 1 differs from this known document D1 : US 4610393 in that, in claim 1,
    - the hot liquid inlet port, cold liquid inlet port, hot liquid outlet port and second cold liquid outlet port are in the stationary distributing member and the hot liquid transfer cavity is in the movable distributing member and
    - the cold liquid transfer cavity also communicates with the second cold liquid outlet port, whereas in D1 all of these ports are in the valve body and the cold liquid transfer cavity cannot communicate with the second cold liquid outlet port.The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

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- 2.2. These features distinguishing claim 1 from the prior art document D1 provide the effect that the outflow of mixed water can never be hotter, other than for a short response time, than the predetermined safe temperature, thus preventing scalding.
- 2.3. Starting from D1 and considering the rest of the prior art, there is no indication that would lead the person skilled in the art to contemplate modifying the device of D1 in such a way as to arrive at the disclosure of claim 1 and it is, therefore, not obvious.
- 2.4. The subject-matter of claim 28 differs from this known document D1 in that, in claim 28,
- the hot liquid inlet port and cold liquid inlet port are in the stationary distributing member and the hot liquid transfer path is in the movable distributing member
  - the cold liquid transfer cavity also communicates with the second cold liquid outlet port, whereas in D1 all of these ports are in the valve body and the cold liquid transfer cavity cannot communicate with the second cold liquid outlet port.
- The subject-matter of claim 28 is therefore novel (Article 33(2) PCT).
- 2.5. The subject-matter of claim 28 is therefore also considered to be inventive (Article 33(3) PCT) for the same reasons as those given for claim 1 in sections 2.2 and 2.3 above.
- 2.6. The subject-matter of claim 29 differs from this known document D1 in that, in claim 29,
- the temperature sensing device is adapted to sense the temperature of the output of the mixed liquids from the chamber and to control the mix proportioning means so that the output temperature at all output flow rates from the chamber can never exceed, except for a small tolerance for a small time, a selected maximum and
  - a second entry port for the cold liquid which is into the output passage of the device downstream from where the temperature of the output flow from the chamber is sensed.
- The subject-matter of claim 29 is therefore novel (Article 33(2) PCT).

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- 2.7. The subject-matter of claim 29 is therefore also considered to be inventive (Article 33(3) PCT) for the same reasons as those given for claim 1 in sections 2.2 and 2.3 above.
3. Claims 2 to 27 are dependent on claim 1 and claim 30 is dependent on claim 29 and also meet the requirements of the PCT.
4. Although claims 1, 28 and 29 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought. The aforementioned claims therefore lack conciseness.  
Hence, claims 1, 28 and 29 do not meet the requirements of Article 6 PCT.

an outlet passage from the device which communicates with said chamber outlet

5 mix proportioning [flow control] means within said chamber able to alter the proportions of hot and cold liquids admitted through said entry ports into said chamber at any rate of combined output flow

10 a temperature sensing device adapted to sense the temperature of the output of the mixed liquids from the chamber and to control the mix proportioning means so that the output temperature at all output flow rates from the chamber can never exceed, except for a small tolerance for a small time, a selected maximum.

30. A device as claimed in claim 29 wherein there is a second entry port for  
15 the cold liquid which is into the output passage of the device downstream from where the temperature of the output flow from the chamber is sensed.

31. A device as claimed in claim 30 which includes a stationary distributing member and a movable distributing member, the stationary distributing  
20 member having ports to the movable distributing member for the supply of hot liquid and cold liquid to the movable distributing member and the movable distributing member regulates the proportions of hot and cold liquid supplied to the hot liquid entry port and to the cold liquid entry ports and the flow rates thereof, and enables complete shut-off of all flows to said ports.

25 32. A method of safely mixing convergent flows of a hot liquid and a cold liquid comprising:  
utilising temperature sensing and flow control to regulate a maximum temperature which could emerge from a device for mixing the convergent hot  
30 and cold liquids, and then adding a secondary flow of said cold liquid to further drop the temperature of the emergent mixed liquids.

33. A method as claimed in claim 32, including the steps of – controlling the flows of hot and cold liquids to said

29 30

- AMENDED SHEET -

device between extremes of full on or completely off for  
either liquid and  
controlling said secondary flow of cold liquid from full on to a lesser flow,  
all of said control steps being performed through a hand movement of 3  
5 degrees of freedom.

30<sup>31</sup>  
AMENDED CLAIMS  
AMENDED SHEET